

**City of Fairfax**  
**Environmental Sustainability**  
**Committee**  
March 10, 2021



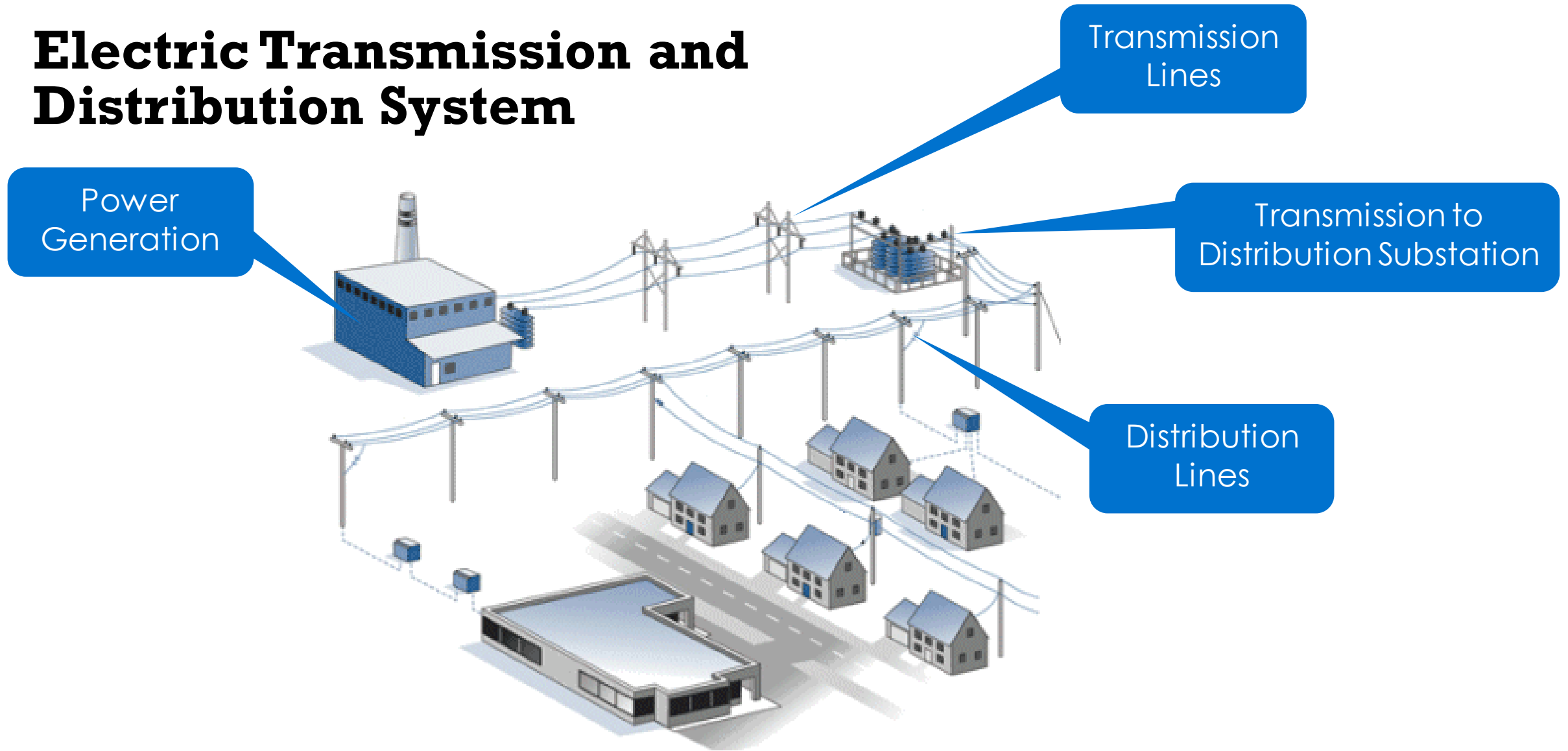
## **Your Safety is Our Top Priority.**

If you see downed power lines, please stay at least 30 feet away from them and call us at **866-366-4357** to report the location immediately.



1. Grid 101
2. Regulation
3. Generation
4. Virginia Clean Economy Act
5. Relay

# Electric Transmission and Distribution System

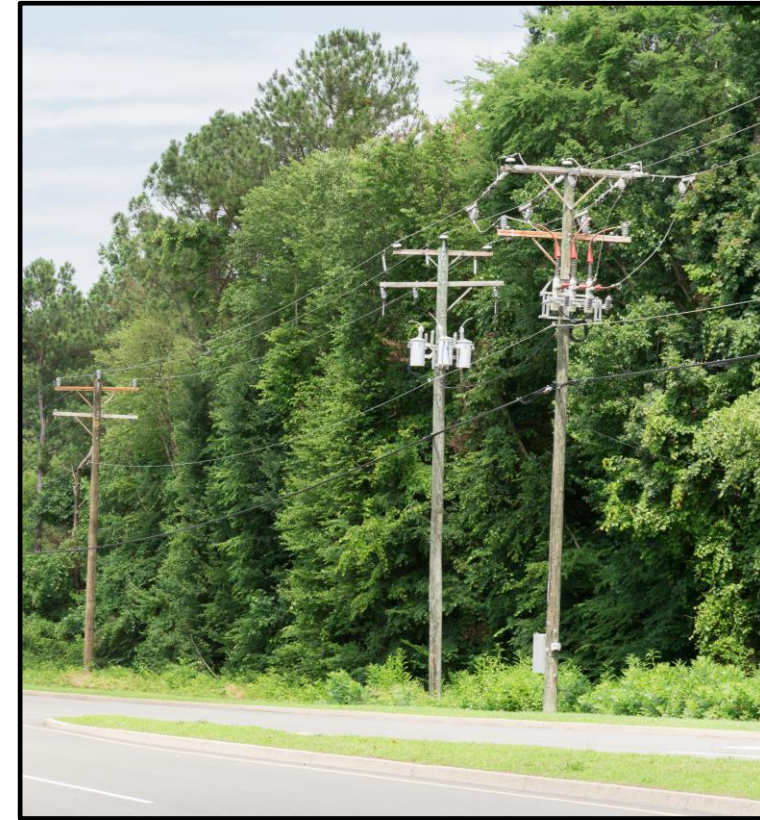


# Electric Transmission vs. Electric Distribution

**Transmission Lines:  
Lattice, H-frame and Monopole Structures**

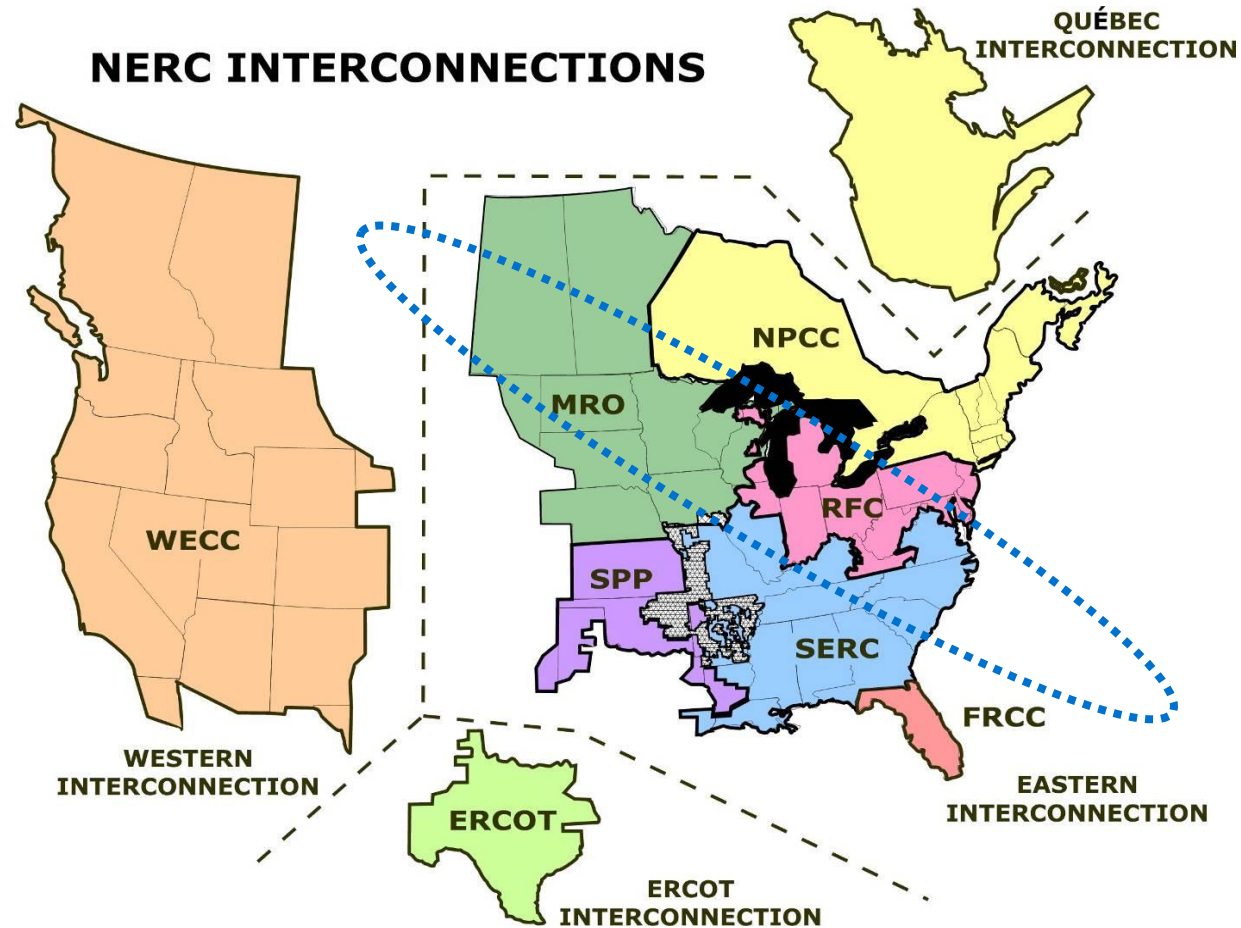


**Distribution Line:  
Overhead Structures**



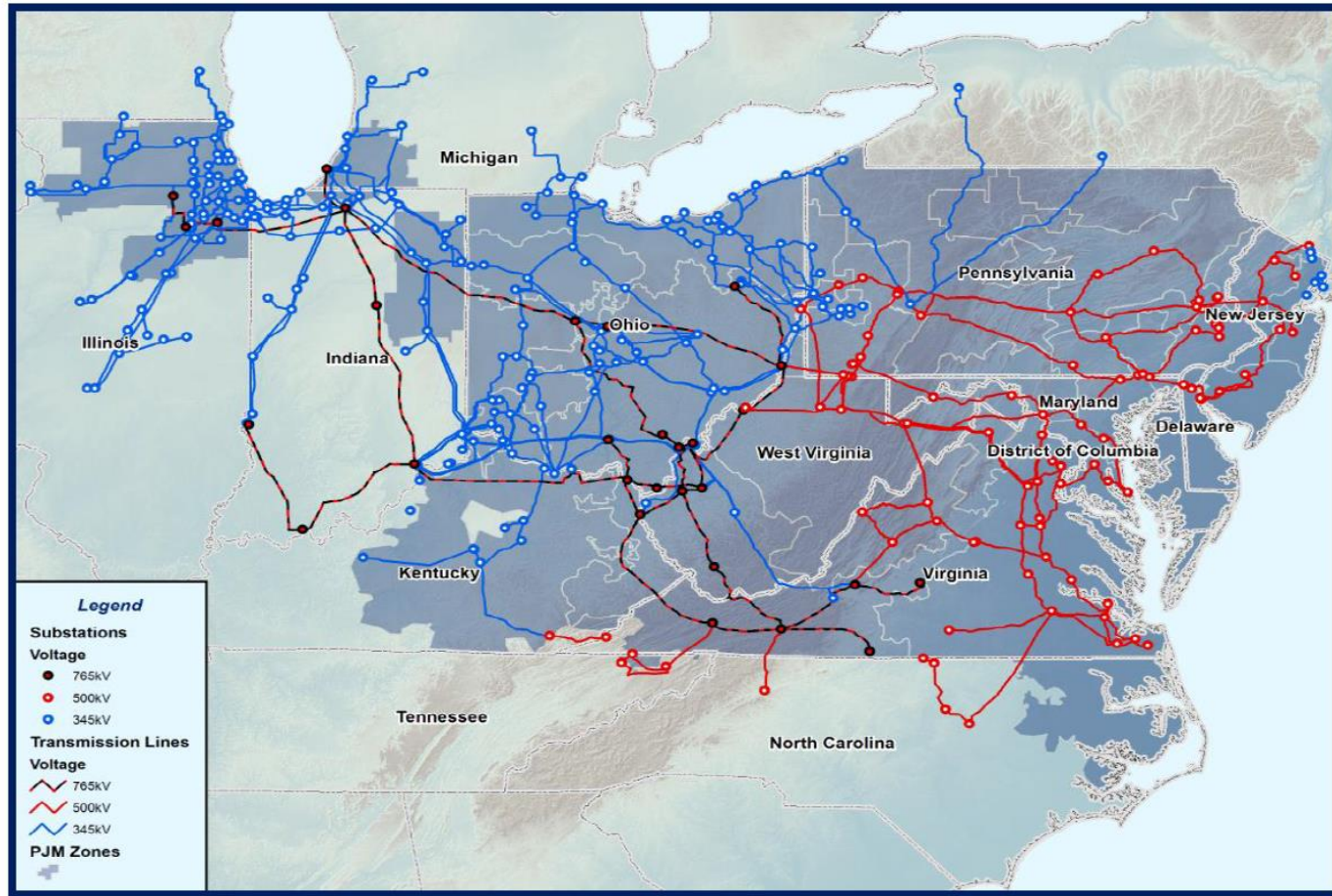
# The Interconnected Grids

Dominion Energy is in the Eastern Interconnection



# PJM Interconnection

One of the largest centrally dispatched control areas in North America



March 10, 2021

- PJM Interconnection is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity
- Neutral, independent party – operates a competitive wholesale electric market and manages the high-voltage electric grid
- PJM's long-term regional planning process provides a broad, interstate perspective that identifies the most effective and cost-efficient improvements to the grid
- Ensures reliability and economic benefits on a system-wide basis



## **A Defining Moment for the Industry**

### **2003 Blackout resulted in:**

- Heightened regulations
- Mandatory fines
- Renewed focus on our nation's energy infrastructure

**Note: This is a depiction not an actual satellite image of the 2003 Blackout.**

# Key Regulatory Bodies



**FERC** – Exclusive jurisdiction to determine and regulate the reliability of the electric transmission grid



**NERC** – Regulatory authority to develop and enforce the mandatory reliability standards – criteria, data and methodology to evaluate and ensure the reliability of the bulk power system in North America



**PJM** – Regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia; Virginia law mandates Dominion Energy's membership



**SCC** – Regulates Virginia public utility facilities, retail rates and service including transmission line need and routing; issues certificates of public convenience and necessity (typically electric transmission lines equal to or greater than 138 kV)

**Cities  
and Counties**

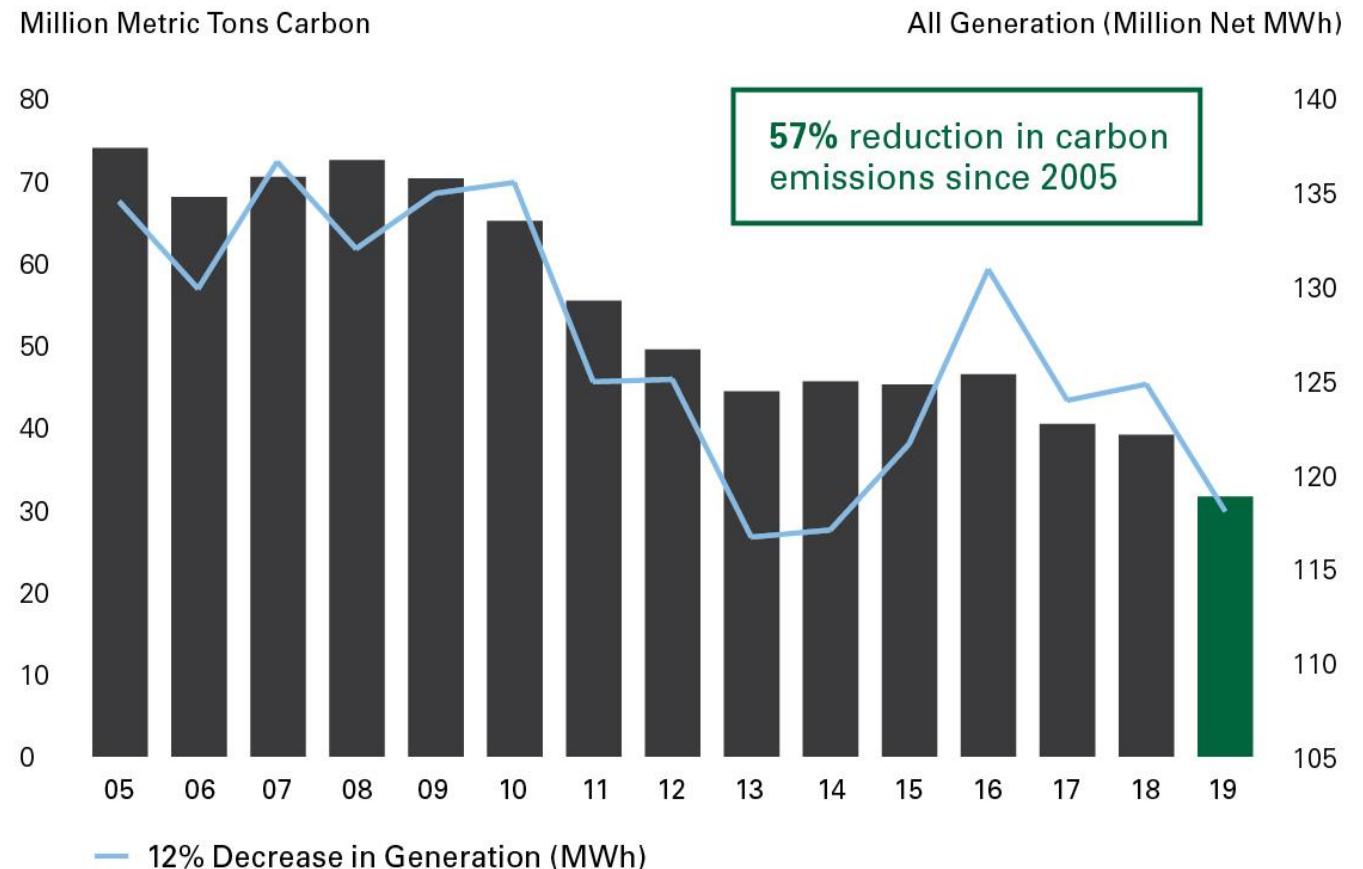
**Local Governments** – Regulate local land use (substations); typically electric transmission lines equal to or less than 138 kV

# Our Net Zero Commitment



- By 2050, we will achieve net zero greenhouse gas emissions
- Since 2005 reduced carbon emissions by more than 50% and methane emissions by 25%
- Immediate action to reduce emissions as quickly as possible, while also exploring new technologies to accelerate future progress

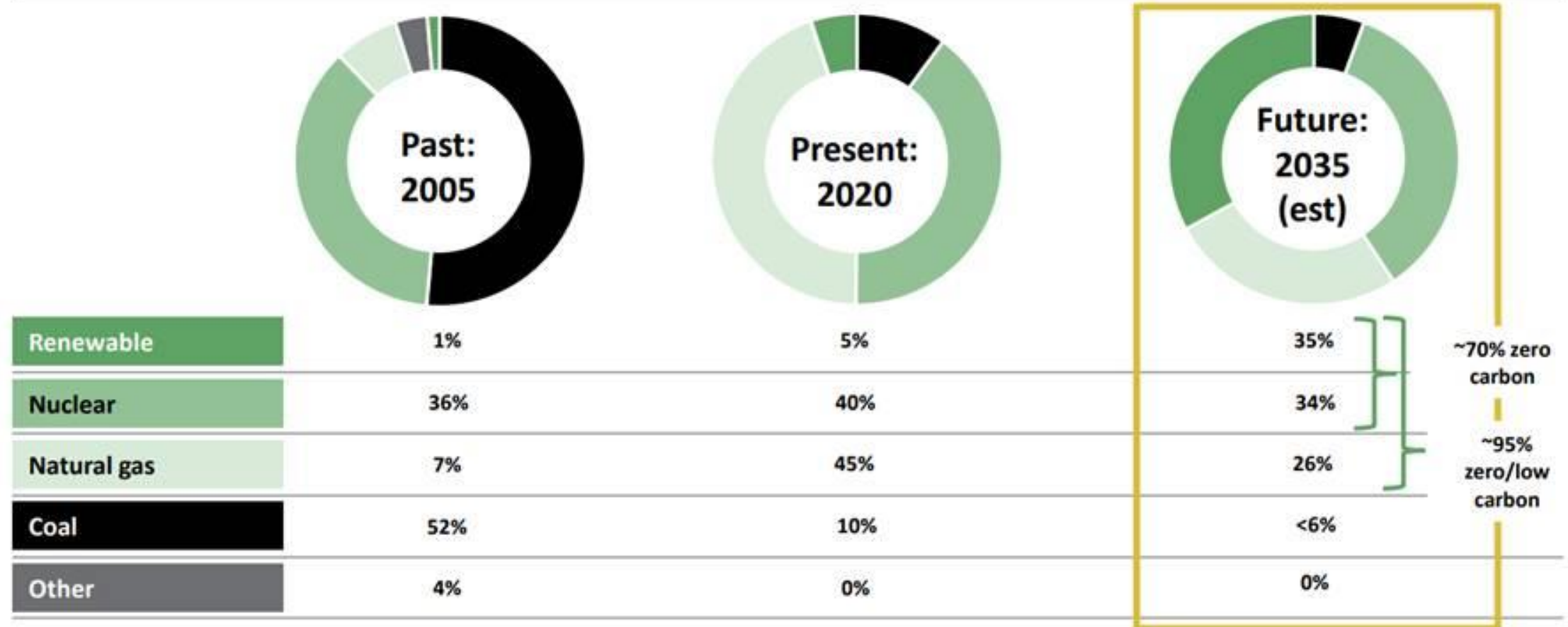
## Dominion Energy (DE + DESC) Carbon Emissions 2005-2019



# Power Generation

## Generation by fuel type

Electric generation by fuel type (Mwh)



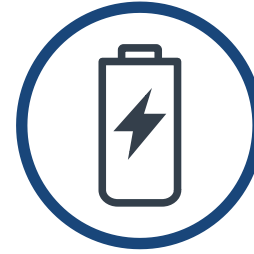
# Virginia Clean Economy Act

## Clean Energy Provisions



### Solar or Onshore Wind

- 16,100 MW by 2035, including:
- 1,100 MW small-scale (<3 MW)
- 200 MW on brownfield sites
- 100% procured from third parties



### Energy Storage

- 2,700 MW by 2035
- One project up to 800MW
- At least 35% from third parties (via Power-Purchase Agreements)



### Offshore Wind

- 5,200 MW by 2035
- 2,700 MW project in public interest
- Costs must be reasonable/prudent
- Priority hiring for veterans, workers local and from disadvantaged communities



### Energy Efficiency

- Targeted reductions in energy sales, using 2019 as a baseline:
  - 1.25% in 2022 → 5% by 2025
  - SCC to determine future targets

# Progress Continues Despite Pandemic

1 megawatt = 250 homes and about 10 acres



## Large-Scale Renewables Request for Proposals

- Issued request for large-scale solar or onshore wind projects May 1.
- Sought proposals for 1,000 megawatts of solar and onshore wind and 250 megawatts of energy storage.

## Land Request for Information

- Issued request on August 11 seeking sites for future solar development.

## Small-Scale Renewables Request for Proposal

- Issued request for small scale distributed solar generation on October 9
- Individual projects under 3 megawatts with aggregate total of 80 megawatts.

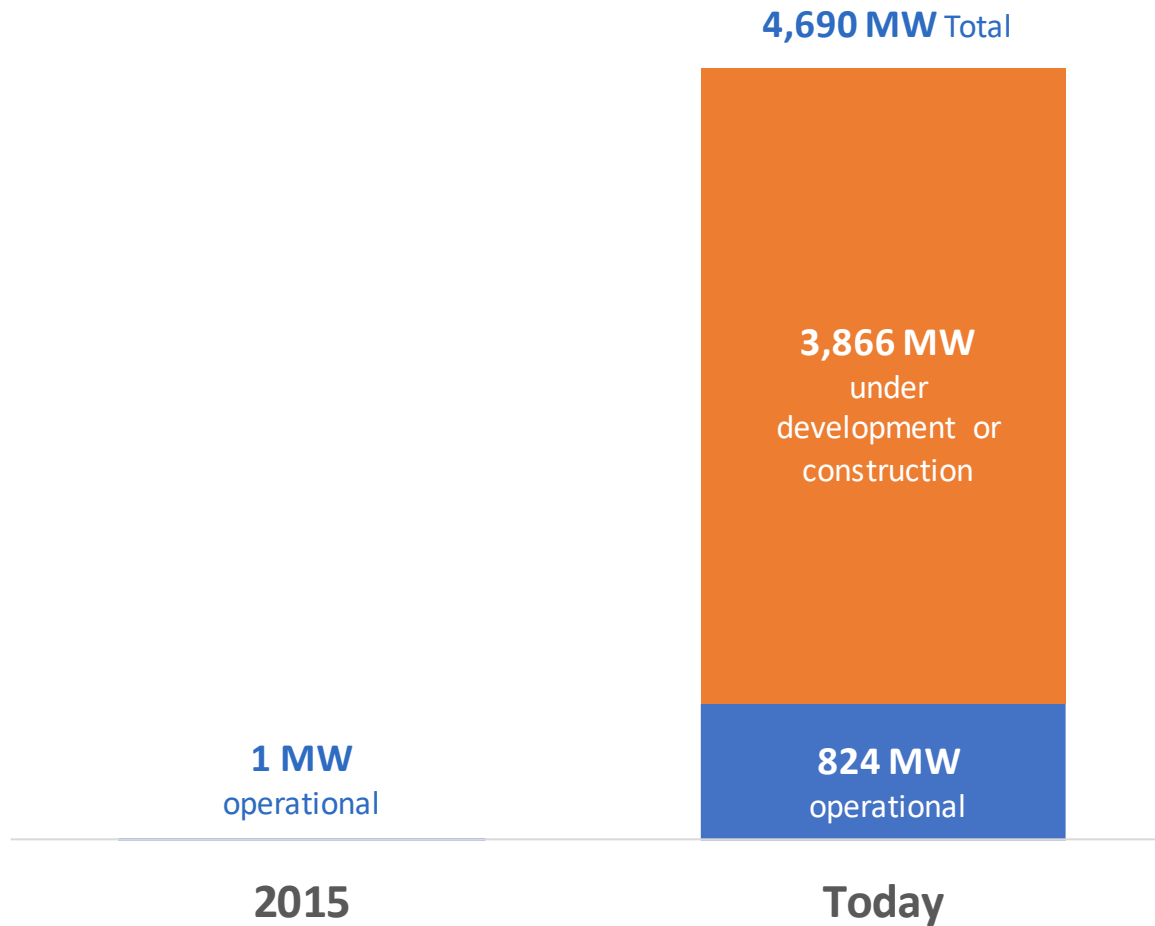
## 2020 Solar Filing

- Filed application with the State Corporation Commission on November 2 for nine solar projects.
- Total 498 megawatts, all of which were selected through a competitive process.
- Largest proposal for new solar generation projects in Virginia.



# Dominion Energy Solar

1 megawatt = 250 homes and about 10 acres



Enough solar to serve  
***1.2 million customers***  
at peak output

# Coastal Virginia Offshore Wind (CVOW)

Progress Continues Despite Pandemic



## Pilot Progress

- Installed first two turbines in US federal waters during 2020.

## Commercial-Scale Progress

- Construction of Coastal Virginia Offshore Wind (CVOW) Commercial project, which is the largest planned in the US, is scheduled to begin in 2024, subject to State Corporation Commission approval:
  - Sub-sea survey work for commercial project underway.
  - Construction and Operations Plan submitted to Bureau of Ocean Energy Management (BOEM) on December 17<sup>th</sup>.
  - Construction of first Jones Act Compliant offshore wind turbine installation vessel is underway.
  - Actively promoting workforce and economic development.



# Energy Efficiency

Progress Continues Despite Pandemic



## First Filing under VCEA – December 1

- Submitted first energy efficiency filing under the Virginia Clean Economy Act for State Corporation Commission consideration.
- 11 new programs – 6 residential and 5 non-residential developed with stakeholder input:
  - 1/3 programs dedicated to low-income customers
- This package expands Dominion Energy’s energy efficiency offerings to a total of 38 active and proposed programs.
- The filing also includes program to provide solar at no cost to low-to-moderate income customers.

## American Council for an Energy-Efficient Economy:

Virginia ranks as the South/Southeast region’s leader and a “top energy story of 2020”



### Energy Efficiency Highlights to Date

Over 12 million energy  
efficient lightbulbs

More than 240,000  
Virginians received energy  
efficiency upgrades

50,000 low-income  
customers’ homes  
weatherized

# Energy Storage

Progress Continues Despite Pandemic



## Battery Storage Progress

- In February 2020, Dominion Energy received approval for 16 megawatts in total for 3 battery storage pilot projects - Powhatan, New Kent, and Hanover County.
- May 1 Request for Proposals sought bids for up to 250 megawatts of in-state energy storage resources.
- Development of a pumped storage hydroelectric facility in Tazewell, Virginia
- Company will conduct annual competitive solicitations to meet the energy storage targets.

## Electric School Buses

- First electric school buses delivered out of 50 being deployed to school districts in areas Dominion Energy serves.
- Supports Vehicle-to-Grid (V2G) technology.

## Hampton Roads Transit

- First electric public transit buses in Virginia.



# Workforce/EnergyShare Programs



*Solar*

*Energy Efficiency*

*Wind*

## **What to expect**

- Dominion Energy will partner with non-profits, schools, others to develop clean energy workforce
- Near-term will provide job shadowing and hands-on experience in energy efficiency and no-cost solar for low-income customers
- Mapping skills needed for offshore wind construction and operation to close any gaps by 2024
- Certain certifications and skills may apply in all three areas



# relay



## Project Partners



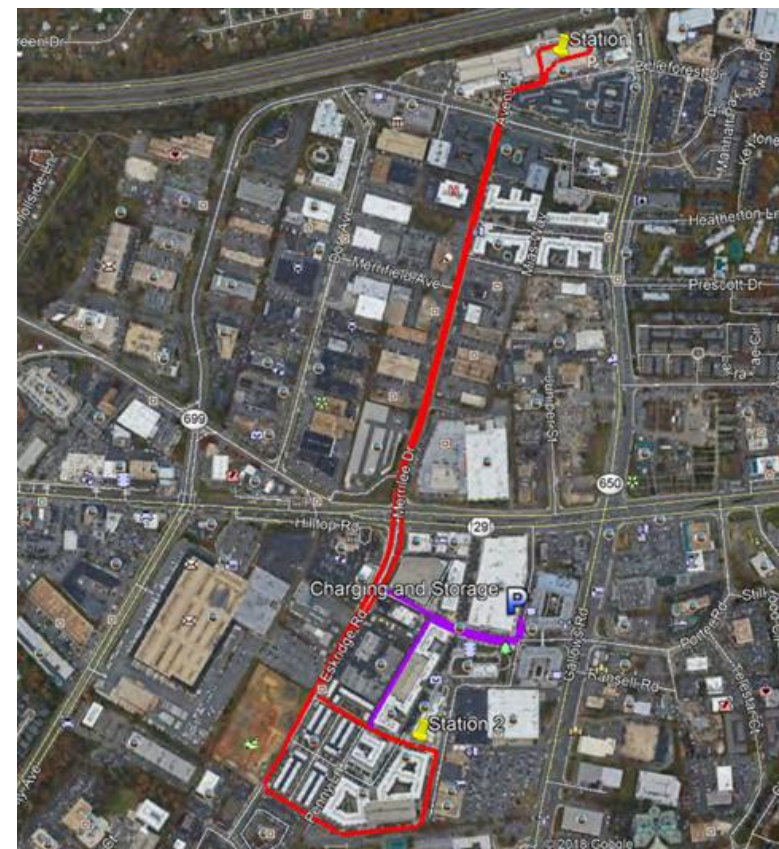
[www.fairfaxcounty.gov/transportation/autonomous-shuttle-pilot](http://www.fairfaxcounty.gov/transportation/autonomous-shuttle-pilot)

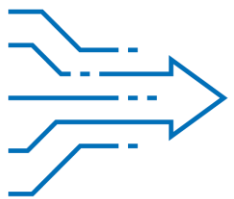


# relay



**Relay** is the new electric, self-driving shuttle that makes a loop between the Dunn Loring Metro Station and Mosaic.



The word "relay" in a white, italicized, sans-serif font, enclosed within a white rectangular border with rounded corners. The background is a solid blue with a pattern of white circuit-like lines and circular nodes.

**Innovation:** Automation is the future of transportation. Riders can be among the first to experience autonomous electric vehicle technology.



**Convenience:** The shuttle will serve as a “first and last mile” connection between the Dunn Loring Metro station and the Mosaic district, providing a convenient transit option for shoppers, visitors, residents and businesses.

The word "relay" in a white, italicized, sans-serif font, enclosed within a white rectangular border with rounded corners. The background is blue with a pattern of white circuit-like icons, including circles, lines, and arrows.

**Safety:** Human error causes 94 percent of car crashes, according to research by the National Highway Transportation Safety Administration. As we move toward an autonomous transportation future, autonomous vehicles can reduce traffic accidents and make the roads safer.



**Reduced Emissions:** Riders are reducing their environmental impact by choosing public transportation and reducing the number of vehicles on the road. By using a zero-emissions electric shuttle, riders will further reduce air pollution.



**Transportation is the #1 source of carbon emissions in our communities.**

### **Electrification benefits**

- Fuel cost reduced by ~75%
- CO2 emission reduced by ~75%

### **Automation benefits**

- Reduces cost
- Improves safety (in the long run)
- Solutions for first and last mile travel

# Questions?